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North Dakota **Fresh Market Potato** Cultivar/Selection Trial Results for 2024

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North Dakota State University Fargo, North Dakota Potato cultivars or selections included in this report were selected from recently released cultivars, advancing selections with release potential (numbered lines progressing through the trial process), or cultivars that are new to the U.S. Standard potato cultivars used by growers served as checks. For comparison, studies conducted in 2019, 2020 and 2021 evaluated several red and yellow-skinned fresh potatoes.

In 2024, two trials were conducted to identify traits of red- and yellowskinned potato cultivars and advanced selections near Crystal, North Dakota. Thirteen red-skinned cultivars and 17 yellow-skinned cultivars were evaluated. Plots were established in a commercial, non-irrigated potato field utilizing common potato-production practices. The authors acknowledge J.G. Hall & Sons for hosting these trials. Prior to planting, urea at 120 pounds of nitrogen (N) per acre was broadcast and incorporated. A randomized complete block design with four replicates was utilized. Seed tubers were hand cut to approximately twoounce seed pieces and suberized prior to planting.

Tubers were planted on June 10 in a single row with nine-inch within-row spacing. Plots were three feet wide and 30 feet long.

The number of emerged plants in the entire plot were counted to determine emergence rate. The number of stems per plant was determined by counting the number of stems on 10 plants in a row in each plot. Vines were killed with diquat on Sept. 9 and Sept. 15. Plots were harvested on Oct. 1 and Oct. 3 with a with a single-row lifter and thereafter bagged by hand.

After harvest, potatoes were stored at 55 F until grading. The tuber size profile distribution was determined by sorting all potatoes harvested into C size (less than 1.875 inches), B size (1.875 to 2.25 inches), A size (2.25 to 3.5 inches) and Chef size (greater than 3.5 inches). Total yield is a summation of C + B + A + Chef. The 2024 agronomic data presented in Tables 1 and 2 were analyzed statistically. These analyses allow the reader to ascertain, at a predetermined level of confidence, if the differences observed among cultivars/selections are reliable or if they might be due to error inherent in the experimental process.

The least significant difference (LSD) values beneath the columns apply only to the numbers in the column in which they appear. If the difference between two cultivars/selections exceeds the LSD value at 0.05 or 0.10, it means that with 95% or 90% confidence, respectively, the higher-yielding cultivar/selection has a significant yield advantage. When the difference between two cultivars/selections is less than the LSD value, no significant difference was found between the two under these growing conditions.

The coefficient of variation (CV) is a measure of variability in the trial and is expressed as a percentage. Large CVs mean a large amount of variation that could not be attributed to differences in the cultivars/selections.

The data provided does not indicate endorsement or approval by the authors, nor by North Dakota State University Extension or University of Minnesota Extension. Reproduction of the tables is permissible if presented with all the same information found in this publication (meaning no portion is deleted and the order of the data is not rearranged). The authors acknowledge the contribution of cultivars and advanced selections for this work from public and private breeding programs and industry partners.



Figure 1. Harvesting research plots near Crystal, ND on October 1, 2024. (Robinson, NDSU/UMN)

Cultivar	Stand ¹	Stems/plant ²	C ³	В	Α	Chef	Total yield	Specific gravity
	%	number			cwt/a			
Actrice	97	3.6	4	98	404	23	529	1.067
Agata	93	3.1	2	119	221	10	352	1.068
Alegria	92	3.9	2	99	214	4	319	1.085
Bernice	89	3.2	6	186	239	1	431	1.075
Challenger	91	4.0	7	195	128	0	330	1.086
Camelia	95	3.3	1	107	250	7	366	1.072
Columba	88	4.6	3	117	343	18	482	1.064
Decibel	89	3.2	8	166	60	0	234	1.073
Georgina	97	4.5	2	92	222	8	324	1.069
Malou	89	4.8	9	165	190	1	365	1.075
MN18CO16154-009	94	4.1	16	173	66	0	255	1.105
MN19AF6945-003	95	4.2	3	79	255	15	353	1.086
MN19TX18206-002	96	4.5	28	169	17	0	214	1.089
Montana	92	3.8	9	189	149	1	348	1.068
Musica	94	4.4	6	177	200	1	384	1.079
ND1241-1Y	95	3.8	9	174	158	0	341	1.107
Sensation	92	3.2	5	106	187	8	307	1.066
Mean	93	4	7	142	194	6	349	1.079
CV	8	25	43	23	24	108	16	0.2
LSD p=0.05	ns^4	ns	4	46	67	9	79	0.003
LSD p=0.1	ns	ns	4	39	56	8	66	0.003

Table 1. Agronomic performance and yield of yellow-skinned potato cultivars/selections grown near Crystal, ND in 2024.

 ¹ Stand count was taken on July 23 (six weeks after planting) by counting every emerged plant and dividing by the number planted.
² Stems per plant were counted on 10 plants on July 23 (six weeks after planting) and are shown as the average number of stems per plant.
³ Harvested potato tubers were sorted on a Kerian Speed sizer as C = less than 1.875, B = 1.875-2.25, A = 2.25-3.5 and Chef = greater than 3.5 inches. ⁴ ns indicate data was not significant at p=0.05



Cultivar	Stand ¹	Stems/plant ²	C ³	В	Α	Chef	Total yield	Specific gravity
	%	number			cwt/a			
Becca Rose	95	3.8	4	97	220	7	328	1.071
Dark Red Norland	99	4.2	2	67	261	5	335	1.075
MN18W17009-001	96	4.0	8	154	79	0	241	1.073
MN18W17026-002	95	4.9	7	181	136	3	327	1.076
MN19ND1759-001	95	4.1	11	142	65	0	218	1.071
Modoc	100	3.2	3	98	181	6	288	1.074
ND113207-1R	98	4.0	8	163	210	7	388	1.067
ND14324B-7R	93	3.2	13	88	93	3	197	1.077
PSS14/083/14	94	3.7	16	222	53	0	292	1.081
PSS14/083/33	98	4.0	27	232	46	0	305	1.080
Red Norland	93	3.1	2	57	226	15	300	1.072
Rediva	97	4.4	18	249	104	2	373	1.085
Sangre	97	1.8	3	63	164	10	239	1.077
Mean	96	3.7	9	139	141	4	295	1.075
CV	7	24	62	19	32	6	19	0.3
LSD p=0.05	ns^4	1.3	8	39	65	9	80	0.005
LSD p=0.1	ns	1.1	7	32	54	7	67	0.004

Table 2. Agronomic performance and yield of red-skinned potato cultivars/selections grown near Crystal, ND in 2024.

¹ Stand count was taken on July 23 (six weeks after planting) by counting every emerged plant and dividing by the number planted.

² Stems per plant were counted on 10 plants on July 23 (six weeks after planting) and are shown as the average number of stems per plant.

³ Harvested potato tubers were sorted on a Kerian Speed sizer as C = less than 1.875, B = 1.875-2.25, A = 2.25-3.5 and Chef = greater than 3.5 inches.

⁴ ns indicate data was not significant at p=0.05



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